

REMARKS

Claims 1-25 are pending in the Application. In the current Office Action, the Abstract is objected to and claims 1-25 are rejected. Reconsideration of the Application and allowance of claims 1-25 in view of the following remarks and
5 Amendment is respectfully requested.

OBJECTION TO ABSTRACT

In paragraph 1, the Examiner objects to the Abstract as being too short. The Amendment to the Abstract submitted herein addresses the Examiner's
10 objection. Applicants submit the amended substitute Abstract on a separate sheet attached to this Response. Applicants respectfully request withdrawal of the Examiner's objection to the Abstract in view of the Amendment.

35 U.S.C. §103

15 In paragraph 6 of the Office Action, the Examiner rejects claims 1-17 and 20 as being unpatentable over Farahmandi et al. US 5,862,035 (hereafter Farahmandi) in view of Harats et al. US 5,554,918 (hereafter Harats); Applicants disagree and traverse the Examiners rejection.

Regarding Farahmandi, the Examiner states Farahmandi fails to teach a
20 housing "having dimensions that conform to standardized battery dimensions"; Applicants concur.

The Examiner further states Harats teaches "a battery having a housing with a size corresponding to a standard cell size." To the extent that Harats

teaches a standard cell size battery, Applicants concur. To the extent that it “would have been obvious to one having ordinary skill in the art to at the time the invention was made to use the battery housing design of Harats with [the] Farahmandi capacitor cell in order to enable the battery to be used in a device accepting standardized battery configurations,” Applicants disagree and traverse the Examiner’s rejection.

The Examiner reasons Farahmandi can be modified using the teaching in Harats “in order to enable the battery to be used in a device accepting standardized battery configuration.” Even assuming arguendo that the foregoing motivation or combine was to find a basis in the cited art, such a teaching would not establish the requisite required *prima facie* case of obviousness that the Examiner must establish against the Applicants claimed invention.

A reading of the aforementioned motivation used by the Examiner, merely leads one to a conclusion that a battery can used in a device that accepts a standardized battery configuration; is this not a statement of the obvious, that batteries are sold and manufactured in standardized battery form factors. Therefore, Farahmandi modified by Harats as cited and used by the Examiner does not teach or suggest Applicants’ claimed invention.

Looking further to an anticipated Non-Final Office Action, the Examiner is reminded that before prior art references can be combined or modified, there must be some suggestion or motivation found in the art to make the combination or modification. It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or

suggestion, in the prior art, to combine the elements. The mere assertion by the Examiner that references can be modified or combined does not make it so, and is insufficient to establish a *prima facie* case of obviousness. Moreover, the mere fact that the modification or combination would be well within the ordinary skill in the art, by itself, is insufficient to establish a *prima facie* case of obviousness. The Examiner has the burden to show the additional step of how the knowledge of the skilled artisan leads to the suggestion or motivation. As well, the suggestion or motivation can only come from the art that existed at a time prior to the invention and cannot come from the invention itself.

For at least the reasons that dependent claims 2-16 depend from independent claim 1, and because the Examiner has failed to establish a proper *prima facie* case of obviousness against independent claims 1, 17, and 20, Applicants respectfully request withdrawal of the Examiner's 35 U.S.C. §103 rejection of claims 1-17 and 20.

35 U.S.C. §102

In paragraph 4 of the Office Action, the Examiner rejects claims 18 and 21-24 under 35 U.S.C. § 102(b) as being anticipated by US 6,433,997 (hereafter Noguchi); Applicants disagree and traverse the Examiner's rejection.

As claimed, independent claim 18 recites "providing a battery sized housing" and independent claim 21 recites "a battery sized energy storage device." Against these limitations the Examiner cites Noguchi (col. 2, lines 41-42). Applicants do not understand the Examiner's use of Noguchi under 35

U.S.C. § 102(b) as there is clearly no teaching or suggestion that the housing/vessel 2 of Noguchi is “battery sized.” Other than a bald assertion that Noguchi inherently teaches Applicants’ invention, the Examiner has provided no reference or citation to such in Noguchi. What instead the Examiner has
5 provided are citations to a “housing/vessel (2)” for holding a double layer capacitor. The Examiner’s burden under a 35 U.S.C. § 102(b) rejection requires that all claim limitations be identically disclosed by the prior art; the Examiner has failed to satisfy this burden.

For at least the reasons that dependent claims 22-24 depend from
10 independent claim 21, and because the Examiner has failed in his burden under 35 U.S.C. §102, Applicants respectfully request withdrawal of the Examiner’s 35 U.S.C. §102(b) rejection of claims 18 and 21-24.

In paragraph 3 of the Office Action, the Examiner rejects claims 19 under
15 35 U.S.C. § 102(b) as being anticipated by Farahmandi et al. US 5,862,035 (hereafter Farahmandi). With regard to claim 19, the application of a prior art reference to a means or step plus function limitation requires that the prior art element perform the identical function specified in the claim. However, if a prior art reference teaches identity of function to that specified in a claim, then under
20 Donaldson an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. The “means or step plus function”

limitation should be interpreted in a manner consistent with the specification disclosure. If the specification defines what is meant by the limitation for the purposes of the claimed invention, the examiner should interpret the limitation as having that meaning. If no definition is provided, some judgment must be exercised in determining the scope of the limitation. Other than citations to Farahmandi, the Examiner has failed to provide an analysis or comparison of structures as required under Donaldson; until the Examiner does so, Applicants are unable to respond with any further specificity to the Examiners rejection.

In re Rose

With reference to dependent claims 6 and 15, the Examiner cites *In re Rose* for the proposition that “a change in size is generally recognized as being within the level of ordinary skill in the art.” To facilitate future prosecution, as well as to help the Examiner better understand that the present invention derives not from a mere change in size or design choice, Applicants provide the Examiner with the following Summary of Invention, which hopefully the Examiner will be able to use to better understand the present invention’s utility and novelty.

Summary of Invention

Conventional capacitor technology is capable of delivering only a limited amount of energy. The amount of energy delivered by conventional capacitor technology can be increased, but generally only at a cost of increasing the

number of capacitors and concomitant occupying volume (page 1 and Background of present Application). With the double-layer capacitor technology used by the present invention, increased power and energy densities have been made possible such that double-layer capacitors can now be considered as direct
5 drop-in supplements or replacements for battery technology (paragraph spanning pages 12-13 of present Application).

The present invention describes a new dry process based electrode technology (top of pg. 7) (described in more detail in incorporated by reference in commonly assigned Provisional Application 60/510,327), which improves upon
10 the prior art. Using the aforementioned double-layer capacitor electrode technology, the Applicants have identified that double-layer capacitors can generate and receive large currents at higher voltages, and sans the subsequent prior art electrode degradation that can occur. For example, a fully charged D-cell battery form factor sized double-layer capacitor, as described and claimed by
15 the present invention, can deliver over 1000 amps of current; compare this with the tens of amps that a similarly sized and fully charged battery is capable of delivering.

In order to electrically conduct the large double-layer capacitor currents, it has been identified that a double-layer capacitor's terminals need to be provided
20 with larger conductive surface areas than previously needed. To this end, Applicants have identified particular geometries that not only facilitate the efficient transfer of high current but, in doing so, now enable the use of

capacitors as direct drop-in supplements or replacements for batteries (pg. 11 of present Application).

Although it is established by known standards bodies that D-cell battery form factor sized housings can be manufactured to comprise relatively large and flat conductive end terminal surface areas of greater than 90 mm² (pg. 11), such surface area determinations did not anticipate, nor were they based on, that high currents (such as 1000 amps as provided by the present invention) would pass therethrough.

The Applicants, however, have found a new unexpected utility for the large end surface terminals of particular battery form factor housings, as well as the housings themselves that allows capacitor technologies to now be used in new types of previously not contemplated or possible combinations or applications. In one embodiment, the Applicants have identified that the 90 mm² end surface areas used in D-cell battery form factor housings can be used to enable the use of double-layer capacitor technology in battery applications. More particularly, the Applicants have identified that the power and energy densities that can now be supplied by double-layer capacitor technology can be used in combination with particular low resistance end surface terminal configurations found in the battery arts to enable double-layer capacitor technology to be used as a direct drop-in supplement or replacement for batteries.

Because the high performance characterized by the present invention has not until recently been possible, the new and novel direct drop-in use of capacitors in battery applications as taught by the present invention has not,

until now, been contemplated. The novelty and utility of present invention is evidenced by its provision of terminals and leads that in the prior art are taught as comprising surface areas and configurations that do not take into account their potential direct drop-in supplement or replacement for battery technology.

5 The combination of the disclosed and claimed features of Applicants' invention provides other unexpected results as well. For example, by using capacitors sized to comprise battery form factors, the number of applications that capacitors can be used is increased; with effectuation of such made possible by the present inventions ability to be easily integrated and interconnected in systems that utilize preexisting
10 standardized battery type connections/connectors/terminals (second full paragraph, pg. 12). This is in contrast to the prior art, which shows only the interconnection of capacitors to capacitor specific connections/connectors/terminals. As well, because double-layer capacitors have charge/discharge lifetimes that are on the order of
hundreds of thousands cycles, their use as a direct drop-in replacement
15 advantageously can eliminate the relatively short replacement cycle that is inherent to the use of batteries (first full paragraph, pg. 12).

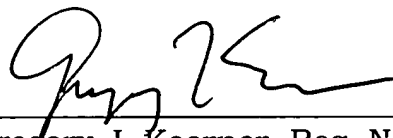
 The foregoing summary was not meant to limit the invention in any way and will hopefully provide the Examiner a fresh look at Applicants' claimed invention such that the Examiner will be able to now determine that the present
20 invention derives not from a mere change in size or design choice.

Conclusion

Applicants submit that the foregoing Amendments and response and remarks overcome the Examiner's objections and rejections under 35 U.S.C. § 102(b) and § 103(a). Because the cited references and the Examiner's citations thereto do not teach or suggest the claimed invention, and in light of the differences between the claimed invention and the cited prior art, Applicants submit that the claimed invention is patentable over the cited art, and respectfully request the Examiner to allow claims 1-25 so that the Application may issue in a timely manner. If there are any questions concerning this amendment, the Examiner is invited to contact the Applicants' undersigned representative at the number provided below.

Respectfully submitted,

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